#1
PROPERTY OF
THE NATIONAL ASSOCIATION OF COST ACCOUNTANTS
NEW YORK CITY
OUT OF PRINT

N. A. C. A. BULLETIN

Vol. XIV, No. 18 May 15, 1933

N.A.C.A. LIBRARY

IN THREE SECTIONS

Section I

IN THIS ISSUE

Accounting Features of Inventory Control in a Truck Factory, by C. R. C. Custer 1319

Coordination of Capacity and Flow of Work in the Maintenance Department of an Automobile Sales Agency, by Clarence L. Dyson 1345

Our Open Forum 1357

This bulletin is published semi-monthly by the National Association of Cost Accountants, 1790 Broadway, New York. Subscription price $15.00 per year. Entered at the Post Office, New York, N. Y., as second class matter August 28, 1925, under the Act of March 3, 1879.

EDITORIAL DEPARTMENT NOTE

Most companies guard their cash very carefully, but a great many of these same companies are careless and inefficient in the control of their inventories which often involve huge sums of money. There are many ways through which losses may be incurred in connection with inventories, as through leakage, spoilage, evaporation, deterioration, breakage, obsolescence, theft, and price fluctuations. Due to the varied nature of the materials used in the manufacture of automobiles and trucks, extreme care must be exercised to prevent inventory losses from several of the causes just mentioned. The first paper presented in this issue of our Bulletin outlines in detail the "Accounting Features of Inventory Control" in use by The Autocar Company, Ardmore, Pennsylvania.

Chris. R. C. Custer, the author of this paper, began his business career in 1911 as Auditor of the Short Line Coal Mining Company and the Cook Coal and Coke Company. In 1914 he joined the staff of Lybrand, Ross Bros. and Montgomery. Later he became assistant to the Treasurer of the Midvale Steel Company. He joined The Autocar Company in 1917 as General Auditor, later becoming successively Assistant Treasurer, Treasurer of sales and service subsidiary companies, and Vice President and Controller of The Autocar Company.

Mr. Custer is a graduate of the Evening School of Finance, University of Pennsylvania, a member of the American Academy of Political and Social Science, and a member of the Philadelphia Chapter of the N. A. C. A. since 1920.

The second paper is a very interesting one as it deals with an important activity which has been more or less divorced from its original, natural and, perhaps, proper place. In the early days of the automobile industry the logical place for the sale and installation of repair parts was in the local dealer's establishment. The repair parts were then manufactured exclusively by the manufacturer of each particular car, whereas now specialty manufacturers make parts to fit a great many cars. Instead of exclusive dealer maintenance for the various types of cars, this work is now widely done by gasoline service stations, brake testing, adjusting and relining stations, and other shops specializing in the repair and maintenance of various parts of the car. During the past three years, when fewer new cars were purchased and more old cars were repaired, there has been a profitable business for the dealer and specialty repair man who conducted this type of work properly. This paper describes the methods of properly controlling and accounting for the flow of work performed in the maintenance department of an automobile dealer. It covers the servicing of new cars, the reconditioning of old cars received as trade-ins, and the repairing and servicing of cars brought in by customers.

Clarence L. Dyson, the author of this paper, received an A.B. degree from Lawrence College and an M.B.A. degree from Harvard University, School of Business Administration. From 1922 to 1925 he was assistant professor of accounting at Lawrence College and at the same time he was a member of the staff of A. E. Dettman & Company, C.P.A.'s. Since 1925 he has been engaged in public accounting practice in Rockford, Ill. Mr. Dyson is a member of our Rockford Chapter.

Copyrighted by
NATIONAL ASSOCIATION OF
COST ACCOUNTANTS
May 15, 1933

ACCOUNTING FEATURES OF INVENTORY CONTROL IN A TRUCK FACTORY

By C. R. C. Custer,
Vice President and Controller,
The Autocar Company, Ardmore, Pa.

I WILL discuss this subject on the basis of the practice of The Autocar Company.

This Company manufactures heavy duty motor trucks of capacities from 1½ tons to 15 tons and distributes these trucks and replacement parts through subsidiary companies operating sales and service branches in 50 cities.

The control accounts for the factory inventory are as follows:

Material
Labor
Manufacturing Overhead
Incoming Transportation
In Transit

The factory accounting will be described under these headings.

MATERIAL

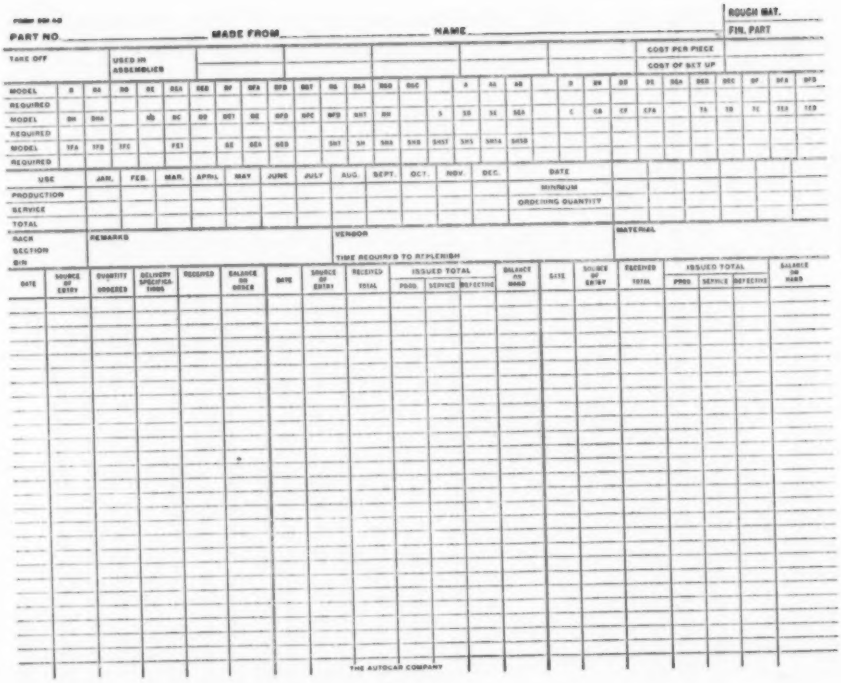
Stores Balance Cards

A Stores Balance Card (Form I) is maintained for each item of material, on which is entered all purchase orders, receipts and issuances, and balances on hand and on order. Entries in columns "Received" and "Issued" are accumulative totals for the year to date and the individual items are not shown. This method enables proof of the balances and facilitates determining the total used for each month as required at the top of the form, and the average monthly use.

The reverse side of this form (Form II) having columns for entry of the movements of the material through the factory, shows the balance in each department.

Purchases

When the balance on hand and on order reaches the minimum limit appearing on the stores balance card, a purchase request form is issued to the purchasing department for the quantity indicated on the stores balance card as the ordering quantity.


PART NO.
MADE FROM
NAME
ROUGH MAT.
FIN. PART
TAKE OFF
USED IN ASSEMBLIES
COST PER PIECE
COST OF SET UP
MODEL
REQUIRED
USE
JAN.
FEB.
MAR.
APRIL
MAY
JUNE
JULY
AUG.
SEPT.
OCT.
NOV.
DEC.
PRODUCTION
SERVICE
TOTAL
DATE
MINIMUM
ORDERING QUANTITY
RACK
SECTION
BIN
REMARKS
VENDOR
TIME REQUIRED TO REPLENISH
MATERIAL
DATE
SOURCE OF ENTRY
QUANTITY ORDERED
DELIVERY SPECIFICATIONS
RECEIVED
BALANCE ON ORDER
RECEIVED
TOTAL
ISSUED TOTAL
PROD.
SERVICE
DEFECTIVE
BALANCE ON HAND
SIZE
THE AUTOCAR COMPANY

FORM 1

PART NO. NAME MINIMUM FINISHED STOCK

OUT DEPT. / OPERS. / IN DEPT. / RATE				OUT DEPT. / OPERS. / IN DEPT. / RATE				OUT DEPT. / OPERS. / IN DEPT. / RATE				OUT DEPT. / OPERS. / IN DEPT. / RATE				OUT DEPT. / OPERS. / IN DEPT. / RATE				SALVAGE DEPARTMENT			
DATE	TRANS. IN	TRANS. OUT	BALANCE	DATE	TRANS. IN	TRANS. OUT	BALANCE	DATE	TRANS. IN	TRANS. OUT	BALANCE	DATE	TRANS. IN	TRANS. OUT	BALANCE	DATE	TRANS. IN	TRANS. OUT	BALANCE	DATE	TRANS. IN	TRANS. OUT	BALANCE

R Repaired
V Retd. Vendor
S Scrap

THE AUTOCAR COMPANY

FORM 2

The purchasing department issues a purchase order to the vendor and copies of the order are forwarded to the receiving and material control departments.

Upon receipt of material a receiving slip is issued indicating the department to which the material has been delivered. Copies of the receiving slip are used as follows:

The material control copy is the basis of entry to the Stores Balance Cards (Form I) of the receipt of the material against order and addition to the stock on hand.

The accounting department copy is attached to the invoice as evidence of receipt of material and approval of invoice.

One copy is retained by the receiving department.

A tabulating machine card is originated for each invoice immediately upon its receipt, punching date of invoice, vendor and amount. These cards are first filed in the "In Transit" file and the invoices are forwarded to the purchasing department for approval.

Upon the return to the accounting department of approved invoice and receiving slip, the tabulating card is transferred to the accounts payable file. The cards from the accounts payable file are placed in the tabulating machine at the close of the month which automatically produces, with the printing attachment, a voucher for each vendor, detailing the date of each invoice, and its amount. These cards are re-sorted according to accounts to be charged and the tabulating machine produces a distribution sheet showing the total chargeable to each account which supports the monthly journal entry, crediting accounts payable and charging the accounts listed.

Work-in-Process

Work-in-process is controlled by entries on the reverse side of the Stores Balance Card (See Form II). When the balance in the finished stock room and in process reaches the minimum finished stock limit, process instructions are issued for the manufacture of the economical quantity established, with consideration to set-up cost, unit cost and rate of use.

Transfer of material between departments is reported on Stock Transfer tickets (Form III) issued by inspectors. These tickets are used also to report the standard hours of operations completed under the group bonus plan.

STOCK TRANSFER 32 **Nº** 6501
THE AUTOCAR COMPANY

DATE | PART NO.

1

NAME

QUANTITY | FROM DEPT. | TO DEPT.

TIME PER PIECE | TOTAL TIME | LAST OPERATION | ORDER NO.

IF NOT REGULAR PRODUCTION STATE PURPOSE OF THIS TRANSFER

POSTED BY | BLDG | FLOOR | BAY | RACK | SEC | BIN | INSPECTOR'S NAME AND NO.

FORM 113E THIS COPY TO BONUS DEPARTMENT

STOCK TRANSFER 32 **Nº** 6501
THE AUTOCAR COMPANY

DATE | PART NO.

2

NAME

QUANTITY | FROM DEPT. | TO DEPT.

TIME PER PIECE | TOTAL TIME | LAST OPERATION | ORDER NO.

IF NOT REGULAR PRODUCTION STATE PURPOSE OF THIS TRANSFER

POSTED BY | BLDG | FLOOR | BAY | RACK | SEC | BIN | INSPECTOR'S NAME AND NO.

FORM 113B THIS COPY TO PRODUCTION FILES

STOCK TRANSFER 32 **Nº** 6501
THE AUTOCAR COMPANY

DATE | PART NO.

3

NAME

QUANTITY | FROM DEPT. | TO DEPT.

TIME PER PIECE | TOTAL TIME | LAST OPERATION | ORDER NO.

IF NOT REGULAR PRODUCTION STATE PURPOSE OF THIS TRANSFER

POSTED BY | BLDG | FLOOR | BAY | RACK | SEC | BIN | INSPECTOR'S NAME AND NO.

FORM 113D THIS COPY TO ACCOMPANY THE GOODS

FORM 3

The tickets are posted to the reverse side of the stores balance cards, deducting the quantity from the issuing department and adding it to the department receiving the material. The standard time per unit for operations completed in each department is shown in columnar heading on the stores balance card and this time is entered from the stores balance card to the stock transfer ticket. This ticket is then forwarded to the accounting department for the purpose to be described under Inventory—Labor.

Defective Material

The inspector issues Defective Stock Tag (Form IV) for all defective material and this tag accompanies the material to the salvage department. Copies of this tag are used as follows:

The material control copy is entered on the reverse side of the stores balance card, transferring material from the operating department to the salvage;

The salvage department copy remains in that department.

If material is to be returned to the vendor, a copy of the defective stock tag is forwarded to the material control department and after clearing the material on the stores balance card, it is forwarded to the purchasing department as the basis for issuing a debit memorandum to the vendor.

Material to be repaired outside is shipped on the basis of an outside operation shipping slip, a copy of which is sent to the purchasing department for issuance of purchase order; a copy to the material control department for entry to the stores balance card and a copy to the accounting department as a record of material held at outside points.

Material to be repaired by the Company is dispatched to the repairing department on a copy of the defective stock tag which is used as an order for the repairs. Upon completion of the repairs, parts are transferred on the Stock Transfer ticket to the department in regular production line.

Material scrapped is reported by the inspector on a defective material slip (Form V). The original is sent to the accounting department for credit to the inventory and a charge to an expense account. The duplicate is sent to the material control department for clearing material on the stores balance cards.

DEFECTIVE STOCK TAG 1

Nº 7400 F

DATE	PIECE NO.	PATT. OR DIE NO.
OPER. DEF.	QUANTITY DEF.	ORDER NO.
INSPECTED BY	DEPT. CHARGED	REPAIR ORDER NO.
APPLY ON TAG NO.	ORIG. DEPT.	FOUND IN DEPT.	JOB SETTER CHARGED

NAME

DEFECTS

REPAIR ROUTING OR SUPPLIER

FOR REPAIR INSTRUCTIONS SEE BACK OF NO. 3 COPY

FIX	ACCEPT	SCRAP	Dis-assemble	RETURN REPAIR	Return Replace	ROUGH	Finished	PRICE	PER	EXTENSION

DEFECTIVE STOCK TAG 2

Nº 7400 F

DATE	PIECE NO.	PATT. OR DIE NO.
OPER. DEF.	QUANTITY DEF.	ORDER NO.
INSPECTED BY	DEPT. CHARGED	REPAIR ORDER NO.
APPLY ON TAG NO.	ORIG. DEPT.	FOUND IN DEPT.	JOB SETTER CHARGED

NAME

DEFECTS

REPAIR ROUTING OR SUPPLIER

FOR REPAIR INSTRUCTIONS SEE BACK OF NO. 3 COPY

FIX	ACCEPT	SCRAP	Dis-assemble	RETURN REPAIR	Return Replace	ROUGH	Finished	PRICE	PER	EXTENSION

DEFECTIVE STOCK TAG 3

Nº 7400 F

DATE	PIECE NO.	PATT. OR DIE NO.
OPER. DEF.	QUANTITY DEF.	ORDER NO.
INSPECTED BY	DEPT. CHARGED	REPAIR ORDER NO.
APPLY ON TAG NO.	ORIG. DEPT.	FOUND IN DEPT.	JOB SETTER CHARGED

NAME

DEFECTS

REPAIR ROUTING OR SUPPLIER

FOR REPAIR INSTRUCTIONS SEE BACK OF NO. 3 COPY

FIX	ACCEPT	SCRAP	Dis-assemble	RETURN REPAIR	Return Replace	ROUGH	Finished	PRICE	PER	EXTENSION

FORM 4

DEFECTIVE MATERIAL 1

FACTORY RESPONSIBLE

DATE _____ PART NO. _____

FROM DEPT. NO. _____ PART NAME _____

ORDER NO.	LOT	ON OPER. NO.	EMPLOYE NO.	CHARGE DEPT.	QUANTITY

NATURE OF DEFECT — KIND OF MATERIAL

OPERATIONS COMPLETED — TOTAL WEIGHT—LBS.

DISPOSITION OF STOCK

REJECTION DUE TO (X)				PRICE	EXTENSION
DEFECTIVE WORKMANSHIP		LOST		MTL.	
DEFECTIVE EQUIPMENT		EXPERIMENTAL		LAB.	
DEFECTIVE DESIGN		CUSTOMER'S PARTS		TOTAL	
CHANGED DESIGN					

SIGNED _____ INSPECTOR

DEFECTIVE MATERIAL 2

FACTORY RESPONSIBLE

DATE _____ PART NO. _____

FROM DEPT. NO. _____ PART NAME _____

ORDER NO.	LOT	ON OPER. NO.	EMPLOYE NO.	CHARGE DEPT.	QUANTITY

NATURE OF DEFECT — KIND OF MATERIAL

OPERATIONS COMPLETED — TOTAL WEIGHT—LBS.

DISPOSITION OF STOCK

REJECTION DUE TO (X)				PRICE	EXTENSION
DEFECTIVE WORKMANSHIP		LOST		MTL.	
DEFECTIVE EQUIPMENT		EXPERIMENTAL		LAB.	
DEFECTIVE DESIGN		CUSTOMER'S PARTS		TOTAL	
CHANGED DESIGN					

SIGNED _____ INSPECTOR

DEFECTIVE MATERIAL 3

FACTORY RESPONSIBLE

DATE _____ PART NO. _____

FROM DEPT. NO. _____ PART NAME _____

ORDER NO.	LOT	ON OPER. NO.	EMPLOYE NO.	CHARGE DEPT.	QUANTITY

NATURE OF DEFECT — KIND OF MATERIAL

OPERATIONS COMPLETED — TOTAL WEIGHT—LBS.

DISPOSITION OF STOCK

REJECTION DUE TO (X)				PRICE	EXTENSION
DEFECTIVE WORKMANSHIP		LOST		MTL.	
DEFECTIVE EQUIPMENT		EXPERIMENTAL		LAB.	
DEFECTIVE DESIGN		CUSTOMER'S PARTS		TOTAL	
CHANGED DESIGN					

SIGNED _____ INSPECTOR

FORM 5

1326

Assemblies Built

The number of major assemblies (motors, transmissions, axles, etc.) produced are reported daily to the material control department, which accumulates the total assemblies and deducts from the stores balance cards semi-monthly the totals of the component parts, as indicated by the engineering specifications of parts entering the assemblies.

Trucks Built

The total cost of each model truck built is accumulated and semi-monthly deduction entries are made on the stores balance cards of major assemblies and other component parts.

Trucks are shipped on factory truck order forms issued upon receipt of orders from the branches. One copy of the factory truck order showing billing price is forwarded to the branch as their invoice. The accounting department copy shows, in addition to the billing price, the labor and material cost. A tabulating machine card is punched from this copy, showing the date shipped to the branch, billing price, and labor and material cost. The cards covering all truck shipments during the current month are placed in the tabulating machine at the end of the month which, with printer attachment, produces statement to the branch showing the number and amount of each invoice and the total billing for the month. After re-sorting according to model, they are again placed in the tabulating machine and total revenues and costs are obtained by models as the basis of the following monthly entry:

Accounts Receivable—Branches, Dr.
Truck Sales to Branches, Cr.

Cost of Truck Sales to Branches, Dr.
Inventory—Material, Cr.
Inventory—Labor, Cr.

The tabulating cards are then filed in the "Trucks at Branches" file until the receipt of the copy of the branch invoice showing delivery to the customer.

The truck costs credited to inventory accounts are standard labor and material costs for the respective models as calculated on the basis of engineering specifications of component parts of the

standard model, with adjustment for changes in the truck shipped from the standard model as reported on the Truck Building Report (Form VI).

Parts Shipments

Parts are shipped to branches on parts orders originated by the branches. Two copies are priced and extended at the customers' list prices indicating also the percentage of discount to be allowed the branch. The order numbers and totals at customers' list prices are listed on a summary sheet for each branch and a copy of this summary, together with one copy of the relating parts orders are forwarded to the branch weekly. The grand totals of shipments for the month are shown on the last summary sheet for each branch. Discounts to the branch are applied to totals and the net amount chargeable to the branch is shown. This method saves the calculation of the net billing price on individual shipments and entries are made only once a month on the branch and factory books for the month's total billings.

One copy of the parts order is retained by the accounting department from which a tabulating machine card is punched for each item showing date shipped, order number, branch, quantity shipped and part number. These cards are mechanically sorted semi-monthly by part number and placed in the tabulating machine which, with printer attachment, produces a statement showing the total quantity of each part shipped during that period. This statement is the basis of a deduction entry on the stores balance cards for the respective parts.

A tabulating machine card punched with the part number and standard labor and material cost is on file for each service part and new cards are punched only when the standard cost is changed. These cards are used at the end of each month as master price cards to automatically price at factory cost the parts shipments of the current month in the following manner. The tabulating cards representing the parts shipped during the month, provide space for factory material and labor cost but these amounts are not punched up to this point. These cards, together with the master price cards, are mechanically sorted according to part number. They are then placed in the tabulating machine which, with special punching equipment connections and printing attachment, lists the total

The AUTOCAR COMPANY **CAR BUILDING RECORD** ARDMORE, PA

Items Marked (X) Do Not Have To Be Part Numbered—All Other Items Must Have APPLICATION NUMBERS
(✓) Check All Special Items.

POWER PLANT	2	0170		Hub Adapter	4	0406		Others X			
Engine	2	020		Drum "				Tool Box			
Base X		Voltage		Axle & Flange Assy	6	020		COWL ASSY	33	0190	
Coil	8	0120		Rear Axle Shaft	6	038		CAB-Bel.Lines	33	0195	
Mfg. No.				" " Flange	6	011		" Appliances	33	0000	
Starter	35	0360		Brake Type X				" Insulat'd	33	0000	
Mfg. No.				RADIATOR	5	060		" Application	33	0000	
Generator	36	0610		GASO. TANK	6			" Mount	33	0000	
Mfg. No.				Location				" Application	33	0000	
Distributor & Gear	8	0170		Aux. Gaso. Tank	6						
Mfg. No.				Location							
Magneto	8	020		MUFFLER	7	010		Booster Brake	38	0	
Mfg. No.				Exhaust Pipe	7	013		Wast Air Brake	39	0	
Battery	36	0360		FRONT AXLE	9	030		Trailer Conn. X			
Location				Mfg. No.				Radiator Guard	33	0150	
Carburetor	6	050		Front Hub&Drum Assy	9	0809		Power Head	38	0150	
Mfg. No.				Front Hub				Extra Cross Members			
Fuel Pump	6	0160		" Brake Drum				Shock Absorbers			
Mfg. No.				" " Shoe Assy.				Radius Rods	26		
Air Cleaner	6	0150		" " " Only				WHEELS, Front-Size			
Governor	2	0650		" " Lining				" Part No.			
Mfg. No.				Brake Type X				" Mfr. No.			
CLUTCH	3	030		STEERING GEAR	10	040		WHEELS, Rear-Size			
Mfg. No.				Drag Link	10	410		" Part No.			
MAIN TRANS.	3	080		Disc Brake	5	0301		" Mfg. No.			
Mfg. No.				Link Assy. R.H.				Spare Rim			
AUX. TRANS.	19	0420		" " L.H.				" Wheel			
Mfg. No.				FRAME	12	710		TIRES, Front			
				" Side Rails	12	5112 13		" Make			
Speedo. Adapter				" Reinforcement	12	2308		TIRES, Rear			
Front Driveshaft	3			" Fish Plates	12	4227		" Make			
Inter. "	3			SPRINGS-FRONT	13	009		Spare Tire-Size			
Rear "	3			Front Spr. Clip	13	342		" " Make			
Inter. Axle Dr. Shaft	3			SPRINGS-REAR	13	011		Tire Carrier			
				Rear Spr. Clip	13	344		Paint			
REAR AXLE	4	010		SPRINGS-AUX.	13	0130					
Mfg. No.				FENDER R.H.	14	510		DRIVESHAFT FLANGES			
Ratio X				" L.H.	14	520		Main Trans. Fr.	3		
Cross Carrier	4	0170		Fender Iron R.H.	14	005		" " Rear	3		
Bevel Drive Pinion	4	025		" " L.H.	14	006		Aux. Trans. Fr.	3		
" " Gear	4	0725		Splash Guard R.H.	14	095		" " Rear	3		
Brake Size X				" " L.H.	14	096		Rear Axle	3		
" Shoe Assem-R.H.	4	0190		Running Board R.H.	14	060		Inter. Axle	3		
" " " L.H.	4	0210		" " L.H.	14	066		Fr. Steady Brng.	3		
" " Only	4	055		" " Brace	14	070		Rear " "	3		
" Lining	4	052		HOOD	16	0800					
Rear Hub&Drum Assy.	4	0800		Cowl Lamps				Motor O.K.			
Rear Hub	4							Trans. O.K.			
Rear Brake Drum	4			Lights, Elec. X				Rear O.K.			
Wheel Studs R.H.	4	3480		" Gas X				Aux. Trans O.K.			
Wheel Studs L.H.	4	3481		Speedo Cable	36	0900					

Customer _____ Branch _____

Car Order No. _____ Model _____ Wheel Base _____ Frame Length _____

Chassis No. _____ Motor No. _____ Trans. No. _____ Cab or Cowl No. _____

Date of Issue _____ Date Scheduled _____ Date Built _____ Date Shipped _____

FORM 6
1329

quantity of each part shipped, and the factory material and labor cost per unit. As each part is listed, this information is automatically punched on a summary card. Upon completion of the listing, the summary cards are mechanically sorted by quantities and with the use of the tabulating machine, extensions are automatically made and a grand total of material and labor cost is shown. This is the basis for a journal entry crediting inventory accounts and charging costs of parts sales.

Other Withdrawals

Material for miscellaneous purposes is withdrawn on Stores Orders (Form VII) which, after daily entry on stores balance cards, are forwarded to the accounting department and at the end of the month are sorted according to accounts to be charged and totalled by adding machine as the basis of a journal entry charging the month's totals to the respective accounts benefited and crediting the inventory control accounts.

Parts Returned to Factory

Parts which the branches desire to return are listed on a Claim Charge Order issued to the factory. Upon the factory checking this list, for elimination of any obsolete parts, the branch is notified to return the parts. The receipt of the material is noted on a copy of the claim charge order by the receiving department. This copy is then forwarded to the material control department and after deduction from stores balance cards, is forwarded to the accounting department which extends the amount of credit on the original and copy. The copy of the claim charge order is returned to the branch as a credit memorandum. A tabulating machine card is originated from the original claim charge order and a summary is produced by the tabulating machine at end of the month as the basis of a journal entry charging inventory accounts and crediting Accounts Receivable—Branches.

Variations from Standard Costs

Standard Material Cost card (Form VIII) for each part shows, in addition to the standard material cost, the quantity and actual unit cost of each purchase. Any difference between the unit pur-

FORM

THE AUTOCAR COMPANY

STORES ORDER FOR MATERIALS

NO._____

DELIVER TO_____ OF_____ DEPT.

AND CHARGE ORDER NO._____ DEPT. NO._____ ACCT. NO._____

PART NO.	ARTICLE	QUANTITY	UNIT COST		EXTENSION	
			MATERIAL	LABOR	MATERIAL	LABOR

STORES DEPT.	ACCOUNTING DEPT.	PURPOSE USED
DELIVERED_____ 19____	PRICED_____ ENTERED_____	
BY_____ STOREROOM NO._____	EXTENDED_____ SUMMARIZED_____	
	CREDIT a/c	

APPROVED_____ SIGNED_____ FOREMAN

FORM 7

DATE 19	STANDARD COST	DATE 19	STANDARD COST

PART NUMBER

ARTICLE SIZE

FOR PART NO. UNIT

DATE 19	UNIT COST	ENTERED FROM	RECEIVED	UNIT VARIATION	TOTAL VARIATION	BALANCE	DATE 19	UNIT COST	ENTERED FROM	RECEIVED	UNIT VARIATION	TOTAL VARIATION	BALANCE

Form 8

chase price and the standard is also entered on the card and extended for the quantity purchased. The extension is entered on a monthly record of variations and the total shown on this record at the close of the month is the basis of a journal entry clearing Inventory-Material with a counterbalancing entry to the variation account.

When a change in standard cost appears warranted, the change is made at the beginning of the next month at which time the quantity on hand as shown by the stores balance card is extended by the change in the standard and this amount is cleared from the Inventory-Material account with a counterbalancing entry to the variation account.

Verification of Stores Balance Cards

At least twice a year, usually when about to re-order, the stores record clerk requests a count of each part. This count is compared with the balance on hand shown by the stores balance card and any difference, after careful investigation, is entered on the Record of Stores Balance Card Differences and the stores balance card is adjusted. No adjustment entry is made on the general accounts until a complete physical inventory is taken at the end of the year.

Labor

It was noted in the description of work-in-process that stock transfer tickets covering the movement of material between departments, were used to report the standard hours of operations completed. The entry of these tickets to the stores balance cards, in addition to showing the location of stock, verifies the quantity upon which group bonus is paid and the stores card clerk enters on the ticket the standard time per unit for the operations completed. These tickets are extended by the accounting department and the total standard hours are posted to the efficiency record of that department for the current payroll period. The total standard hours of operations completed by each department during the payroll period are multiplied by the standard labor rate of the department and the grand total of these departmental results is charged from the payroll to the labor inventory account. The dif-

ference between this amount and the total amount paid for productive labor is written off to the labor variation account.

An Operation Sheet (Form IX) is originated for each part manufactured. This form serves as routing instructions and shows the standard time for each operation. The total standard time for operations in each department is extended at the standard labor rate applicable to the department and the grand total of these results is the total standard labor cost of the part.

Labor inventory is credited at this cost for all shipments of parts. The truck costs are compiled on the basis of the standard cost of each component part as indicated by engineering department specifications plus assembly labor at standard cost. The standard truck cost thus compiled is used in crediting labor inventory and charging cost of truck sales.

Inventory—Manufacturing Overhead

The grand total of actual manufacturing overhead expenses for the month is charged to the account Inventory-Manufacturing Overhead.

The ledger balance of Inventory-Labor at the end of each month is multiplied by the standard rate of manufacturing-overhead and the ledger account of Inventory-Manufacturing Overhead is adjusted to this amount. This adjustment is written off to the current month's loss or gain account.

Inventory-Incoming Transportation

Freight and express bills are charged to this account currently. The account is adjusted at the end of each month to an amount determined by multiplying the ledger balance of Inventory-Material by the standard transportation rate. The adjustment is written off to the current month's loss or gain account.

Inventory—In Transit

It was noted under the description of purchases that a tabulating machine card is originated immediately upon receipt of the invoice from the vendor. All such cards remaining in the In-Transit file at the close of the month are placed in the tabulating machine which, with printer attachment, produces a schedule showing dates of invoices and amounts covering material in transit.

OPERATION SHEET

PART NO. _____

DATE _____ ISSUE NO. _____ NAME _____

MATERIAL _____ PCS. PER MODEL _____

MACHINE	SET UP TIME	FOR PIECES	DEPT.	OPER.	STD. HRS.	PC. PER HOUR	REG. NO.	OPERATION TO BE PERFORMED

FORM 9

This is the basis of an entry adjusting to this total the ledger balance Inventory-In Transit with a counter-balancing entry to accounts payable.

Annual Factory Inventory

Physical inventory is taken as of November 30 although the fiscal year closes December 31. This enables the accounting department to thoroughly check the inventory and proceed with pricing and extension during December which facilitates the closing of the books after December 31. The total inventory is compared with ledger balance of November 30 and any difference is entered as an adjustment in closing entries of December 31.

An inventory committee, consisting of the production manager, factory accountant and material controller, conducts the inventory.

Inventory instructions are issued to all employees having any connection with the inventory. These instructions detail the following:

1. Date of inventory, indicating date of discontinuing and resuming plant operations
2. Preparation in shop and stockrooms
3. Organization for inventory
4. General groupings of items to be included in inventory
5. Items to be excluded from inventory
6. Method of counting and recording on inventory tags
7. Control of tags
8. Items easily confused in counting
9. Adjustment of stores balance cards to inventory
10. Listing, pricing, extension, addition and verification
11. In-Transit inventory.

Upon completion of verification of the count, inventory tags are gathered by material control and accounting department clerks.

The count is entered on stores balance cards from the tags which are then passed to the accounting department for listing on inventory sheets.

Work-in-Process is listed showing the last operation completed. The standard cost record for each part shows the accumulated

cost up to and including the operation listed and the inventory item is priced at this cost.

The inventory is priced at standard costs of labor and material.

BRANCH INVENTORY

Truck Inventory

A Stock Record (Form X) is originated for each truck as soon as received by the branch. The right-hand portion of this form is captioned "In" providing for description of the chassis and equipment as it was received. The original copy becomes the branch truck stock record on which the branch accountant enters from the factory invoice the amount charged for the truck. Changes in the truck or its equipment are currently entered on this copy from the stores requisition.

The cardboard carbon copy Form XI of Cars in Stock Record is attached to the truck as a stock tag until delivered to the customer, at which time the portion captioned "Out" is used for describing the chassis and equipment as it was delivered to the customer. This copy is immediately forwarded to the branch accountant who compares the "In" checking with "Out" checking, noting if all changes in the truck have been correctly accounted on the stock record copy of this form. The total cost of the truck as equipped when delivered to the customer, as shown by the stock record copy, is entered on the sales journal as the cost of the truck sale. The cars in stock record is removed from the inventory file and placed in a transfer file.

Parts

A card record is kept at the branch for each part in their stock, to which is entered all purchase orders, receipts and issuances. To simplify the entry of the numerous retail transactions, no balance-in-stock column is carried. In posting the parts issued, the only entry made is the accumulated total issuances since the last factory order was placed. When the accumulated total reaches the ordering quantity, the part is re-ordered and a new start is made in accumulating issuances. This is based on the assumption that the maximum stock is on hand or on order at the beginning and the variation in the actual condition must, upon starting the record, be entered on the column "Accumulated Deliveries."

CARS IN STOCK. CHASSIS ONLY OR BODY ONLY

INVOICE DATE	NO.	CHARGED TO ACCOUNT NO.	AMOUNT

ADDITIONS & DEDUCTIONS

ORDER NO.	ITEMS	ADDITIONS	DEDUCTIONS	AMOUNT
	CR. No. 15 Excess Additions over Deductions DR. No. 15 Excess Deductions over Additions			
	TOTAL COST—AUTO ORDER NO.			

DATE

IN CHASSIS No. / MOTOR No. / BODY No.

From

For

Chassis Style ______ Color ______

Springs

Tires Kind ______ Solid / Pneumatic

Size-Front ______ Rear ______

Side-Lamps ______ Tail Lamp ______

Head Light ______ Gas Tank ______

Extra Equipment

Shortages

Body-Style

Color

Curtains-Drivers Side R. ______ L. ______ Storm ______

Body Side R. ______ Rear ______ L. ______ Front ______

REMARKS:

CHECKED BY

O. K. ______ Foreman

FORM 10

STORES REQUISITIONS Numbers		RETURN STORES Numbers		REPAIR ORDER Numbers	

DATE **OUT**

For _____

_____

_____

Chassis Style _____ Color _____

Springs _____

Tires Kind _____ Solid / Pneumatic

Size-Front _____ Rear _____

Side Lamps _____ Tail Lamp _____

Head Light _____ Gas Tank _____

Extra Equipment _____

_____

Shortages _____

_____

_____

Body-Style _____

Color _____

Curtains-Drivers Side R. _____ L. _____ Storm _____

Body Side R. _____ Rear _____ L. _____ Front _____

REMARKS: _____

_____

_____

DELIVERED BY _____

DATE **IN** CHASSIS No: MOTOR No: BODY No:

From _____

For _____

_____

Chassis Style _____ Color _____

Springs _____

Tires Kind _____ Solid / Pneumatic

Size-Front _____ Rear _____

Side Lamps _____ Tail Lamp _____

Head Light _____ Gas Tank _____

Extra Equipment _____

_____

Shortages _____

_____

_____

Body-Style _____

Color _____

Curtains-Drivers Side R. _____ L. _____ Storm _____

Body Side R. _____ Rear _____ L. _____ Front _____

REMARKS: _____

_____

_____

CHECKED BY _____

O. K. _____ FOREMAN

THIS CARD MUST REMAIN ON CAR UNTIL READY FOR DELIVERY AT WHICH TIME IT IS DETACHED AND FORWARDED TO ACCT'G. DEPT. CARD SHOULD BE PRESENTED AT STOREROOM FOR STOCK DRAWN OR RETURNED AND THE STORES ORDER NUMBERS SHOULD BE THEN ENTERED.

FORM 11

The factory percentage of discount to branches is not uniform on all parts and some purchases are made locally at special prices. Therefore, to accurately control the inventory without the necessity of extending the branch cost of each item sold, the branch ledger control account, Parts Inventory, is carried at customers' list prices and the difference between this amount and the branch cost is set up on a Reserve for Parts Inventory account. By this method, the cost of parts sold is determined at the end of the month by applying to the total list price of sales, the average ratio of cost, and the difference between this amount and total sales at customers' list prices is charged to Reserve for Parts Inventory. Any variation of actual costs from the average ratio used is absorbed in Reserve for Parts Inventory until the inventory is taken at the end of the year. However, the control account Parts Inventory is credited at the same prices which were charged to this account; namely, customers' list prices, and the stockkeeper is impressed that he must account for the stock at this value.

Invoices for parts received are extended and totalled at customers' list prices. This total is charged to Parts Inventory control account and the difference between this amount and the actual amount of the invoice is credited to Reserve for Parts Inventory.

Parts sold direct to customers are reported on parts sales orders, showing extensions and the total at list prices with any trade discounts deducted from the total.

Parts used in repair operation are withdrawn on stores requisitions, extended the same way as parts sales orders and summarized on the repair order.

The sales journal provides special columns for entry of the parts at customers' list prices and the amount of trade discounts deducted in billings. This facilitates entries at the end of the month to the control account of Parts Inventory and to Reserve for Parts as described in the foregoing.

A comparative statement showing parts inventory, monthly average sales for twelve months and turnover rate of all branches is forwarded monthly to each branch manager. The branches are listed in the order of their turnover rate which, by appeal to the competitive spirit, encourages the close control of parts stock.

Repair Labor Inventory

The total hours of repair labor are charged at standard cost rate to Repair Labor Inventory from payroll. The difference between this amount and the actual amount paid is written off to variation account in current month's loss or gain. The hours of labor are posted to repair orders from the time tickets and upon completion of repairs, the total hours are entered in a special column provided on Sales Journal. The total of this column for the month is multiplied by the standard cost rate and the result is the basis for entry crediting the Repair Labor Inventory and charging labor cost of repair sales.

ANNUAL INVENTORY

Physical inventory of stock at each branch is taken at least once a year. If unexplained differences appear in the annual inventory or if, during the year, the Parts Inventory control account shows undue increase, a special inventory will be taken.

The inventory dates are so scheduled over the last three months of the year that a factory traveling auditor will be at each branch to verify the inventory.

Inventory instructions are a part of the accounting manual supplied to branches, and are much the same as the factory inventory instructions described in the foregoing.

Inventory sheets are supplied by the factory to the branches, printed with a list of parts usually carried in the branch stock, showing the customers' list prices per unit and noting the percentage of special discount opposite items to which normal discount does not apply.

The branch enters on inventory sheets the quantity on hand, extends and adds at customers' list prices. The totals are summarized according to the percentage of discount applicable so that the discounts can be calculated on grand totals at customers' prices to determine the net branch value.

The total inventory at customers' prices is compared with the branch ledger control account, Parts Inventory. The adjustment entry covering any difference is deferred until the closing entries are made December 31.

The Reserve for Parts account is adjusted to the total amount of discounts deducted from customers' prices of parts on inventory, on the books of branches whose inventory has been taken at December 31. At branches inventorying at another date, the percentage determined by dividing total discounts by parts at customers' list as shown by inventory, is applied to the ledger balance Parts Inventory December 31 and the Reserve for Parts is adjusted to this amount. The adjustment of Reserve for Parts reflects the variation of actual cost from the cost of sales calculated during the year at the standard rate.

RESERVE TO REDUCE BRANCH INVENTORIES TO FACTORY COST

As a factory profit has been entered on the books of the parent manufacturing company when shipments were made to branches, it is necessary to enter an adjustment to cover the factory profit on inventories carried by subsidiaries at branch values, so that the inventory will appear on the consolidated balance sheet at conservative value not, exceeding cost. An account Reserve to Reduce Branch Inventories to Factory Cost on the parent company's books provides for this adjustment which is determined in the following manner:

Trucks

It was noted in describing the accounting for factory truck shipments that a tabulating machine card was originated for each truck shipped, showing the billing price and material and labor costs. These cards remain in the file Trucks at Branches until receipt of the copy of the branch invoice indicating delivery to customer, when the card is removed. The cards in the file Trucks at Branches at the end of the month are placed in the tabulating machine and the total billing price and costs determined. The prime costs plus manufacturing overhead and transportation at normal rates, are deducted from the total billing price and a reserve is set up for this profit.

Parts

The annual inventories of several representative branches are priced and extended at factory costs of labor and material. The

ratios of these costs to customers' list price as shown on these inventories are applied to the combined inventory of all branches and to this amount is added manufacturing overhead and transportation at normal rates. The factory cost of the branch inventory thus determined is deducted from the combined net book value of inventory of branches and reserve is set up for this profit.

To establish a basis for computing monthly the required reserve on parts, the factory parts sales and costs are totalled for such period dating back from December 31, as will produce total sales corresponding to total branch inventory, assuming branch inventories represent the most recent factory shipments. The ratios of factory costs to sales as shown by these totals are compared with the ratios shown by the factory costs on the annual inventory of branches. This variation is due to the assortment of parts in inventory differing from the assortment in sales. The monthly reserve is calculated on the basis of the factory costs of most recent factory parts sales equalling the current amount of branch inventory. The percentage of variation as mentioned in the foregoing is applied, and after adding manufacturing overhead and transportation at normal rates, the total is deducted from the branch net carrying value of inventory and a reserve is set up for this amount of difference.

The control of inventory requires cooperation of the sales, engineering, purchasing and manufacturing departments, particularly in an industry where changes in the product are frequent. The sales department should keep the material control department informed as to the probable sales. The engineering department should, as early as possible, advise regarding contemplated changes in product, and when they become effective, purchasing and manufacturing departments naturally desire to contract for large quantities to reduce unit costs, but must restrict the purchases to economical quantities, considering carrying charges and possibility of obsolescence. The accounting procedure should provide reports and records to facilitate this cooperation.

SUGGESTED BIBLIOGRAPHY

INVENTORIES:

N. A. C. A. Publications:

Accounting Control of Materials Purchased. Bulletin I, Nov. 15, 1926.
Accounting for Material. Bulletin I, Sept. 1, 1926.
Control of Stocks of Merchandise. Bulletin I, Aug. 15, 1925.
Human Element in Material Control. Bulletin I, Aug. 1, 1925.
Inventory and Material Control in the Columbus Dental Manufacturing Company. Bulletin I, June 1, 1932.
Material Control and Stores Accounting. Bulletin I, Feb. 1, 1929. (out of print)
Materials in Standard Costs. Bulletin I, July 1, 1927.
Turnover Control. Bulletin II, April 15, 1930 (out of print)
Reducing Inventory Investment Through Turnover. 1925 Year Book. pp. 19-47.
Inventory Control as Used by Taylor Instrument Companies of Rochester, N. Y. Bulletin I, Sept. 15, 1931.
Inventory Accounts and the General Accountant. Bulletin I, Feb. 1, 1926.
Handling Inventories at the Crompton and Knowles Loom Works. Bulletin II, Jan. 15, 1927. (out of print)
Inventory Accounting and Control for the Dyeing Industry. Bulletin II, Feb. 1, 1931. (out of print)

(There are many other references to our material on this subject to be found in our October 15, 1932 Topical Index)

General:

Materials Handling. The American Society of Mechanical Engineers, 29 West 39th Street, New York, N. Y., May-August, 1929. 64 pp.
Perpetual Piece Control as Applied to the Merchandising of Men's Clothing. Bureau of Business Research, Ohio State University, Columbus, Ohio. August, 1928. 32 pp.
Stores Records, Burroughs Adding Machine Co., 6071 Second Blvd., Detroit, Mich.
Perpetual Inventory or Stores Control. Chamber of Commerce of the U. S., Washington, D. C. 1929. 26 pp.
Electric Controller and Manufacturing Company Now Have Stores Record System That Eliminates the Necessity of Factory Shut-down for Physical Inventory. Elliot-Fisher Systems, Harrisburg, Pa. Bulletin No. 109.
Scheduling and Inventory Control. The Society of Industrial Engineers, 205 W. Wacker Drive, Chicago, Ill. Bulletin of May, 1930, pp. 3-12.
Inventory Control, Including the Valuation of Basic Stocks at Normal Prices. International Congress on Accounting, 100 Washington Square, East, New York, N. Y. Proceedings of Congress of 1929, pp. 542-564.
Inventory Practice and Material Control, by Frederic W. Kilduff. McGraw-Hill Book Co., 330 West 42nd Street, New York, N. Y. 1925. ix, 446 pp.
Inventory Turnover—the Measure of Efficient Management. The Purchasing Agent, 11 Park Place, New York, N. Y. Issue of July, 1929. 3 pp.
Procedure for Inventory Control. National Machine Tool Builders' Association, 1415 Enquirer Bldg., Cincinnati, O. 1930, Bulletin No. 9. 20 pp.
Economic Control of Inventory, by Joseph H. Barber. Codex Book Co., 461 Eighth Ave., New York, N. Y. 1925. 116 pp.

See also Bibliography on Page 1359.

COORDINATION OF CAPACITY AND FLOW OF WORK IN THE MAINTENANCE DEPARTMENT OF AN AUTOMOBILE SALES AGENCY

By Clarence L. Dyson
Public Accountant, Rockford, Ill.

A MALADJUSTMENT between capacity and volume probably is the most common condition in business today. Hence this title seems to embrace a very broad subject.

But it is not my purpose to attempt a discussion of this maladjustment as aggravated and intensified by the present (past or future) economic crisis. Neither do I propose to discuss it as a common evil in all business during so-called normal conditions. I shall merely describe this maladjustment as found in one small business and discuss the methods used to attain improved coordination.

It is hoped that this may possibly add something to the record of similar experiences and thus aid in accomplishing for the small business concern what refined methods of accounting and management already have done for many large ones.

In this connection, the Bulletins and the Yearbooks of the N. A. C. A. have contained discussions and descriptions of many achievements of accountancy and management; but a substantial proportion of these have been taken from the records of the larger business enterprises. And, as a result, the applicability of modern methods have not been readily connected with the problems of the smaller manufacturing, service, wholesale or retail concern. This, it seems to me, is both natural and unfortunate.

It is natural that the experience of the larger—perhaps nationally known—business concern should gain more general recognition; such companies usually are considered successful because they are large and their products, packages, brands, etc., are widely known. And it is natural that accomplishments by concerns like this gain greater circulation because the men responsible for them have the ability and the time to put them into readable form.

It is unfortunate, in my opinion, that many of these excellent advances in accounting methods and in managerial proficiency are presented from the viewpoint of the large business alone, be-

cause it usually is not easy to interpret them in terms of a business operating on a much smaller scale. It is difficult to see the principles that are involved through the maze of mechanics that are used to apply them in a large and complex business organization. So the conclusion usually is that such methods are suitable for a large concern but not for the smaller one.

It is known, of course, that there are many relatively small business concerns that are as successful as the well-known large ones so far as the return on the investment is concerned. Moreover, the larger part of the country's business still is transacted by the great multitude of small business units. And—more important from this standpoint—a great number, probably a majority, are poorly managed and have only the most elementary accounting methods in use.

In some lines of business, associations have sprung up to aid the smaller business along the paths blazed by the larger companies. In some other lines, where a close connection is recognized between the progress of the small unit and the success of the larger one, efforts have been made to educate or to force them to adopt better methods. Examples of each of these are well known.

The particular small business in which the methods here described were applied is the part of one of our largest industries that is in direct contact with the ultimate consumer—the Maintenance Department of an automobile sales agency.

To get a picture of the situation in which this company found itself in 1930 it is desirable to indicate briefly what had been happening to the average concern in this business during the rapid growth of the industry.

Though all manufacturers of automobiles had insisted, almost from the beginning, that their dealers have a service department in connection with their sales rooms, most of them gave little or no attention to the matter in which these shops were operated. Doubtless they gave some heed to the quantity of parts their dealers were able to sell; but, in the main, it was their policy to sell as many cars as they could, get the money for them, and let the dealers wrestle with the service and repair business as well as they could.

Quite naturally the dealers were sympathetic with the manufacturers' desire to sell more cars, because there was a ready market for new cars and a good margin of profit was allowed.

But specialized services and specialty stores soon began taking first one portion and then another of the business that logically belonged to the car dealers.

The business of lubricating cars was weaned away from them through the aggressive merchandising methods of gasoline distributors and super-service greasing establishments; also, much of the business of car washing and interior cleaning has been taken over by the last-named institutions.

Then, too, specialists in body repair, upholstering, painting, radiator repair, generator service, and the sale and service of batteries have stripped the car dealers of this considerable volume; and the tire and accessories stores have taken the major portion of the business in this line.

In addition, parts have been copied by specialty manufacturers, and these have reached a ready market by way of the numerous cut-price auto parts stores.

And coincidently with this loss the car dealers, independent automobile repair shops have taken a considerable portion of the volume of labor on the cars.

In brief, then, while manufacturers and dealers were facing flat-footed the golden prospect and actuality of more and more sales of new cars, behind their backs they were being parted from a tremendous volume of profitable business that they themselves were producing through selling the cars. And the business they have lost was of a more repetitive and enduring nature than was the business they were permitted to retain.

The Significant Facts

The N. A. C. A. Company is a dealer and distributor for a line of automobiles ranging in price from $1,000 to $2,500. Like nearly every company in this business, it was faced in 1930 with a severe decline in sales of new cars.

The executives of this company, in a search for some source of revenue that might hold the concern together, determined to see what could be done about the repair business. Though the maintenance department appeared to be operating near capacity and showed some profit, they desired to have the maintenance business analyzed to see if it could not be made to yield considerably more.

As a first step, the gross margins on the several items sold were determined in order to find the one of greatest significance from the standpoint of profit. And this showed that the rates of margin ranged from 60% on labor to 10% on work that had to be done outside. Labor was the most profitable item by a considerable degree; parts being next in line with a margin of 40% on selling price; therefore labor was our significant item.

But it seemed probable that labor might have a significance from the standpoint of control also. Hence percentage variations between weeks were computed for each of the items sold to determine whether or not the changes in other items had any relation to the sale of labor hours. And this computation bore out our surmise to some extent. We found that the percentage changes coincided roughly though not exactly. This coincidence was close enough, however, to permit the use of M. L. H. (Mechanics Labor Hours) as a measure of progress and profits in this department.

Concentrating on labor, we next made an analysis of the M. L. H. purchased (not sold) to determine the number and the percentage that fell into each of the following classes:

1—Sold to Customers
2—New Car Service
3—Used Car Reconditioning and Service
4—Shop Expense
5—Idle Time

And it is sufficient for the present purpose to state that slightly more than 50% of the M. L. H. fell into items (2) and (3) above. Also, it was found that as much as 100 hours per month had been idle time.

Whereas control over the disposition of M. L. H. had been left to the department head, it was evident from the above information that this was virtually no control at all. Central office control was considered a necessity. Then it was recognized that two distinct kinds of business were involved: (a M. L. H. sold to customers—hereafter called "Productive M. L. H."; and (b) M. L. H. devoted to new car service and used car reconditioning and service—hereafter called "Company M. L. H."

Company M. L. H. and Idle Time

One reason for the large percentage of M. L. H. that had been devoted to new car service and used car reconditioning and service was the attitude of the man in charge of the maintenance department. There had been a large inventory of used cars on the floor; and he had been using them as a means of eliminating unemployment for his men. When nothing else was available for them, he set them to tinkering with a used car.

Another reason was that work on these cars had been ordered without a proper realization of and regard for its cost. Trade-ins had been taken at a figure and had been then turned over to the maintenance department to be "fixed." No written orders were given; and this word "fixed" was too indefinite a term to use in connection with a used car. Moreover, if the trade-ins didn't work to the satisfaction of a salesman when they were returned ready for sale, the salesmen became violent and sent them back for more "fixing." Thus the salesmen had a standing excuse for not making a sale.

To remove both of these causes for excess service and reconditioning the written order shown in Figures 1 and 2 was put into use. It will be noted that these forms are identical except for the lower part of the sheet. They are used as follows:

When a sale has progressed to the point where a definite offer must be made for the trade-in, the shop foreman is called to make his estimate of what would be required to make the proposed trade-in salable as a first, second, third, or fourth class car. Each operation considered necessary is listed, and opposite it are extended the labor hours, parts, accessories, oil and grease, and outside work. Hours of burden are the same as mechanics labor hours. These columns then are totalled opposite "Total Estimated"; and, when the items are not on a cost basis, percentages are applied. Then the totals for "Total Estimated Labor," "Total Estimated Parts," etc., are entered and are totaled, showing the total cost to recondition the proposed trade-in.

On the original copy (Figure 1), the manager enters the estimated profit or loss on this car *after reconditioning.* The second copy (Figure 2) is sent to the shop as authorization for the work order. This procedure results in the following advantages:

ORDER FOR CAR RECONDITIONING NO._____

To Service Department:

You are hereby authorized to recondition
Used Car #_____ in accordance with the following directions:
Class:

DESCRIPTION	Labor Hrs.	Parts List	Access. Cost	Oil-Gr. List	O. W. Cost	Burden Hrs.
Total Estimated						
Apply Standard Rates						
Total Estimated Labor						

" " Parts	
" " Access.	
" " Oil & Gr.	
" " O. W.	
" " Burden	
Total Estimated	

Signed_____
S. D.

Approved_____
Manager.

Car Received on Invoice No._____
Estimated Resale Price.....
Allowed for this Car.....
Estimated Reconditioning.....
Estimated Profit or (Loss).....

FIG. 1

ORDER FOR CAR RECONDITIONING NO._____

To Service Department:

You are hereby authorized to recondition

Used Car #_____ in accordance with the following directions:

Class:

DESCRIPTION	Labor Hrs.	Parts List	Access. Cost	Oil-Gr. List	O. W. Cost	Burden Hrs.
Total Estimated						
Apply Standard Rates						
Total Estimated Labor						
" " Parts						
" " Access.						
" " Oil & Gr.						
" " O. W.						
" " Burden						
Total Estimated						

Signed_____ S. D.

Approved_____ Manager.

ACTUAL COST

Ticket	Labor Hours	Parts List	Parts Net	Access. Net	O. W. Net	Oil List	Grease List	Other
TOTALS								
Rate								
Cost								
Total								

FIG. 2

1—The work to be done on the trade-in is fully described and definitely limited.

2—The shop foreman has put his estimates into written form, and he should be able to explain any deviation from them.

3—The number of mechanics labor hours that must be expended for reconditioning is established with fair accuracy, and planning for customers' service is facilitated thereby.

When the trade-in has been reconditioned per order, the car is returned to the sales department and the reconditioning order is returned to the central office. There the actual costs are entered from shop tickets; and, after inspection by the manager, the form is turned over to the bookkeeper for the journal entry which will add the actual reconditioning cost to the inventory cost of the particular car.

Idle time was taken out of the picture by the easy method of payment for hours worked only.

With the work units applicable to reconditioning and service placed under executive order, the next step was to see what could be done about the work units available for sale.

Productive M. L. H.

The significant facts concerning the M. L. H. sold to customers was (1) the exceedingly small number sold during a typical month; and (2) the great fluctuations from day to day in the number sold.

One reason for the small number of M. L. H. sold to customers was the attitude that this agency, in common with most others, had towards this phase of the business. Data on the number of cars of this make in the territory showed that the agency was getting less than one-tenth of the total business in repairing these cars. When this fact was made apparent, means were undertaken to try to get this business back. Though it was realized that considerable time and effort would be required to do this, it was arranged to have the maintenance department properly emphasized when the sale of a car was being closed; and selling points were selected by which it was believed the owners could be induced through direct mail advertising to go to the agency for repair work.

The second important reason for this small volume of productive M. L. H. was that no attempt had been made to promote business from day to day. Drop-in customers had been depended upon for volume, and this clearly was insufficient. So a customers sales record was put into operation.

For each car in the territory—taken from license statistics—a service card was headed up as shown in Figure 3.

Note that the mileage is shown on this record; and by the use of dates and mileage together it is possible to determine about how much an owner uses his car. This is a good indicator as to when he would be expected to come in for certain standard adjustments and supplies. This is true provided the owner goes *exclusively* to this agency for repairs. And this service record is advanced as one reason for going to this place exclusively, because the agent is able to tell him when he had certain work done and when other work normally should be done. This point is emphasized in the direct-by-mail advertising.

Printed postal cards are used to notify owners that they have not appeared since ..... and that their mileage on that date was ..... Space is provided to check certain adjustments or jobs that the record shows might be needed on their cars. If no response is received from a card, the central office makes a telephone call if possible. Thus if the customer has become dissatisfied for any reason, it is known in time so that he may perhaps be saved. If he has become dissatisfied for a genuine cause the matter can be followed to its source. In brief, then, this system accomplishes the following purposes:

1—A service is rendered to car owners (which is appreciated in many instances and thus reacts favorably to the agency).

2—A reason is created for going to this repair department *exclusively*.

3—Dissatisfaction is detected early—in many instances in time to prevent loss of a customer.

4—A means is provided for regulating the flow of work in this department.

As regards the violent fluctuation from day to day in the number of M. L. H. sold, there appeared to be two chief causes.

1 Accident	5 Brakes - Rattle	9 Carbon	13 Cylinders N-New R-Regrind	17 Outside Work	21 Steering
2 Axle Rear	6 Bearings	10 Carburetor	14 Electrical	18 Paint	22 Valves
3 Brakes—Adjust	7 Body Rattles	11 Chains—Renew	15 Generator	19 Spindle Bolts & Bushings	23 Water Leaks
3 Brakes - Reline	8 Chassis Rattles	12 Clutch	16 Lubrication	20 Spring Bolts & Bushings	24 Misc.

19		MILEAGE	JOB NO.	8 9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

NAME OF CAR MODEL

CUSTOMER'S NAME

FIG. 3

In the first place, the practice being to depend upon drop-ins, any even flow of business would have to be simply a matter of luck. But with the sales promotion efforts described above, some control could be exercised by increasing or decreasing the efforts along this line.

In the second place, there had been no evident effort to plan the schedule a day or more ahead. This had been true as regards even company M. L. H. So the daily report shown in Figure 4 was used.

Though this form should be self-explanatory, one feature of it should be emphasized. The last few lines at the bottom of the form "Planned for Next Day" indicate to the central office how nearly full the schedule is exclusive of drop-ins. Though some elasticity has to be provided to take care of normal drop-in business in accordance with the season, the manager should have evidence that the head of the maintenance department has planned his work so far as possible. If the space is left blank it indicates failure by the department head to plan his work or it shows a pressing need for more sales promotion.

Summary

Under this plan of control the central office has knowledge of the capacity of this department in terms of its significant item, namely, M. L. H. Also, with its control over capacity which it has allocated to company M. L. H. it has knowledge of the capacity left for productive M. L. H. And, with the sales promotional data and facilities at its disposal, together with the daily report of progress and planned work, it has the tools at its command to keep productive M. L. H. at the highest level permitted by its market and by economic conditions. As regards the effect of this plan on profits, approximately twice the amount of net profit was shown in this maintenance department for the first six months as had been shown in the six months preceding. Comparison of later periods became futile as the depression became more severe.

Finally, it should be mentioned that the cost of operating this plan was almost nil. Printing and stationery was the only additional cost. Though central office control was effected, the personnel of this office continued to comprise merely the general manager and one clerk assisted by the auditor at the conclusion of each month's business.

DAILY S. D. LABOR REPORT NO. _____

Sales			New Cars		Used Cars			Other	
Customer	Mileage	Hrs.	Serial #	Hrs.	Order #	Car #	Hrs.	Desc.	Hrs.
TOTALS									
Est. for to-day.									

Planned for next day:

Signed - _____
Service Department.

FIG. 4 .

OUR OPEN FORUM

Mr. Isaacson, I like your paper, which appeared in the Dec. 15, 1932 Bulletin, on standard costs for a medium-sized plant. It is a fine portrayal of how a simple standard cost system is constructed, but there is an important discordant note that keeps clanging in my ears. It comes from the way you leave out, slight and disregard the proper organization set-up that is needed to make your system operate smoothly and successfully. On page 605 you seem to get started by saying something about "the first step." No doubt you mean the step necessary for getting the standards set for a new product. But, kind sir, isn't that step about the 99th one in establishing a standard cost system for a plant?

The basic organization must be sound. It cannot be overlapping. It must be clear-cut in lines of responsibility. Also, an excellent code of operating accounts is necessary—a code that fits the organization like a glove.

As for me, as a teacher, I always want good solid groundwork established before teaching the higher things. The items I mentioned above are most important in building a standard cost system. If they are wanting or poorly constructed in a given enterprise, be it large or small, it will not be long before everybody is wading around in chewing gum.

Thus, to me, your treatise is a sin of omission, not one of commission. There are these two kinds of sin, because I remember from boyhood that father's favorite prayer asked forgiveness of both.

Seriously, I feel you can add very materially to the value of your paper if you will give a portrayal of the organization all the way down to cost centers and gang bosses. Then, in addition, you might show how your operating accounts *reflect all outlays in terms of specific responsibilities indicated in your organization.*

You have built up a splendid little paper—so splendid that it deserves a much better foundation than you have given it.

Do you agree?

Selah!

CHARLES REITELL.

I should like to comment on the paper on "Baking Costs," by J. H. Middleton in our January 15, 1933, issue.

To the person or accountant not familiar with the methods of the baking industry, I believe that Mr. Middleton's brief description of the handling of raw material and of preparing doughs for baking, preliminary to his detail accounting information, is one of the best that I have ever read. In the baking industry, there are different types of baking; for example, bread bakers, cracker bakers and cake bakers all have different processes to go through peculiar to their own product, so that while a person may be an expert bread baker, he might be a poor hand in the cracker plant or as a cake baker, and the reverse order also is true in all cases.

But getting down to Mr. Middleton's paper, on page 764 he brings out the theory that the manufacturing department should be given full credit for all production at list.

This brings up the often debated question between the sales and manufacturing departments as to what price the sales department should pay for regular goods that are distributed as samples. The manufacturing department wants credit at list, the sales department claims it should only pay net cost to the manufacturing department. Briefly, my theory is that the manufacturing department should receive credit at list. Primarily, as

brought out in Mr. Middleton's paper, that the percentages of manufacturing costs be made comparable in each accounting period. One period should not receive credit for production at cost and another at list, and then have the manufacturing department told that its costs are too high.

In preparing a comparative statement of costs between various manufacturing points as outlined on page 767, executives, sometimes, in analyzing these reports, particularly, where plants are scattered over a large area, fail to take into consideration local conditions which govern the expenses of those plants. On page 768, there is a daily report of production and sales, which appears as though it would require a large amount of clerical detail to complete. The point being that daily reports sometime require so much clerical detail that they are not completed for the executives until possibly a week has passed.

This brings out a thought that I have had for some time as to the advisability of daily reports. I dare say that in a majority of organizations daily reports are not given the same careful scrutiny that they should, or the monthly financial operating report receives. If such is the case, it would be a saving of dollars and cents to that organization to discontinue its daily reports, but it must be distinctly understood that each organization must be the judge of its own situation.

A fixed asset record, as outlined by Mr. Middleton on page 769, is a record that should be kept by every organization, but it is true that a good many executives feel that a detailed record, such as outlined, is a needless waste of clerical effort and is of no financial value. When the time comes for either recapitalization, consolidation, etc., these same executives are looking for the records of fixed assets and fret and fume when they are not available. Records of this character cannot be made on a day's notice, and like "good wine," require time to make them valuable and appreciated.

Mr. Middleton winds up his splendid paper with a description of the detail that is followed on their truck cost. For any organization that maintains a large number of delivery units, such as is done by practically all organizations in the baking industry, a record of this character is absolutely essential. Here again, care should be taken that detail information is not being compiled that will be used only infrequently. It is much better to suffer a loss of one dollar than it is to spend two dollars in clerical detail to prevent this loss.

W. J. MADISON.

SUGGESTED BIBLIOGRAPHY

AUTOMOBILES AND TRUCKS:

N. A. C. A. Publications:

Budgeting as Applied to Automobile Manufacturing. Bulletin I, Nov. 1, 1929.

Financial Control Policies of General Motors Corporation and Their Relationship to Cost Accounting. Bulletin I, Jan. 1, 1927.

Cost Accounting for a Fleet of Delivery Trucks. Bulletin II, Oct. 15, 1931 (out of print)

Truck Costs and Analysis. Bulletin II, July 15, 1930. (out of print)

Truck Operation and Control. Bulletin II, Oct 15, 1928. (out of print)

General:

Cost Accounts in Principles and Practice. C. A. Ridgway. pp. 70-106. vii. Isaac Pitman, 2 West 45th Street, New York, N. Y.

Service Station Management, Its Principles and Practice. 1922. v, 171 pp. D. Van Nostrand, 8 Warren Street, New York, N. Y.

A Suggested Budget Control for Stutz Dealers. 41 pp. Stutz Motor Car Company of America, Inc., Indianapolis, Ind.

Automobile Service Station Inventory Control. R. E. Warren, L. R. B. & M. Journal, 90 Broad Street, New York, N. Y. Mar., 1928. pp. 12-20.

Analyzing Our Industries. C. E. Fraser and G. F. Doriot. 1932. 488 pp. McGraw-Hill Book Company. Chapter III. Automobiles. pp. 25-60; Chapter IV. Motor Trucks and Busses. pp. 61-81.

Card of Accounts for Westinghouse Union Battery Service Companies. 13 pp. Westinghouse Air Brake Company, East Pittsburgh, Pa.

Operating Expenses in the Retail Automobile Tire and Accessory Business in 1923. Vol. XI, No. 9. Bulletin No. 48. Sept., 1924. pp. 60. Harvard University, Bureau of Business Research, Cambridge, Mass.

Standardized Accounting System Manual for Franklin Distributors and Dealers. 1928. Franklin Automobile Company, Syracuse, N. Y.

Accounting for Ford Automobile Dealers. The Pathfinder Service Bulletin No. 26. Feb., 1931. C. R. Hadley & Company, Los Angeles, Calif.

Uniform Accounting System Manual for Dodge Brothers Dealers. May, 1926. 205 pp. Dodge Bros., Inc., Detroit, Mich.

BULLETIN PUBLISHED SINCE AUGUST, 1932

Accounting for Block Community Organization, by C. E. O'Neil	September 1, 1932
Simple Application of Gain-Sharing Principles, by R. E. Jacke	September 15
Time Study and Its Relation to Piece Rate Method of Wage Payment, by C. O. Rainey	September 15
Reducing Employee Absenteeism and Tardiness, by Ralph R. Bruster	October 1
What Use Can the Sales Manager Make of Manufacturing Costs, by Charles C. James	October 1
Cost Accounting for Motion Picture Production, by Oscar Gilbertson	October 15
Mine Accounting, by Jesse L. Maury	October 15
Physical Check of Shoe Factory Inventory Items, by Raleigh I. Glynn	November 1
Cost Reports for a Newsprint Company, by Herbert E. Tucker	November 1
Production Costs in Leather Goods Plant, by J. C. Connell	November 15
Property Records for Motor Buses, by Thomas A. Dunbar	November 15
Profit Control for Manufacturing Jewelers and Silversmiths, by James V. Toner	December 1
Speeding Up the Preparation of Financial Statements, by William B. Knuff	December 1
A Standard Cost Layout as Planned for a Medium-Sized Organization, by L. E. Isaacson	December 15
Production Control Methods in Use at the Andrews Division of The Washburn Company, by Harold E. L. Green	December 15
Accounting for Repairs, by W. J. Madison	January 1, 1933
Accounting for Maintenance, by Charles L. Hill	January 1
Baking Costs, by J. H. Middleton	January 15
The Development of Standard Order-Handling and Order-Filling Cost Rates, by Frank J. Naumann	January 15
A Cost Accountant Reduces Cost and Improves Quality in a Hosiery Mill, by Dwight M. Allgood	February 1
Factory Payroll Budget of the National Cash Register Co., by R. F. Whisler	February 1
How to Determine Costs on Pre-Determined Sales Forecasts with Special Reference to Idle Capacity Cost Applied to the Product, by C. Howard Knapp	February 15
How We Run Our Business on a Budget, by C. A. White	February 15
Budgetary Control of Branch Office Expense, by E. A. Kleinschmidt	March 1
Accident Prevention, by E. S. McClary	March 1
Engineering Principles Applied to the Printing Industry by Harry H. Lang	March 15
Survey on Asset Revaluation, by Research and Service Department	March 15
Financial Incentives for Clerical Service, by A. W. Bass	April 1
Measuring Output of Office Work, by William H. Smith	April 1
Salary Reduction and Readjustment: An Emergency Plan, by E. P. Case	April 1
Profits Through Controlled Distribution, by Elihu Hedges	April 15
Setting Sound Selling Prices, by Nelson B. Gaskill	April 15
Municipal Accounting, by Arthur A. O'Shea	May 1
Accounting for Boroughs and Villages, by W. H. Fisher	May 1
Accounting Features of Inventory Control in a Truck Factory, by C. R. C. Custer	May 15
Coordination of Capacity in the Maintenance Department of an Automobile Sales Agency, by C. L. Dyson	May 15

HERE'S WHAT YOU'RE COMING TO THE 1933 CONVENTION AT NEW YORK FOR— THE TECHNICAL PROGRAM:

Tuesday Morning, June 13:

The Reconstruction of the Balance Sheet (two papers)

1. Adjustment of Capital Assets and Structure in View of Present-Day Conditions.
2. Case Study of the Factors Which Should Be Considered Prior to the Development of a New Line of Product.

Tuesday Afternoon:

Pricing for Profit (two papers)

1. The Economic Features and Effects.
2. What the Cost Accountant Can Do About It.

Wednesday Morning, June 14:

Municipal Accounting (two papers)

1. The Principles of Municipal Accounting Compared With Industrial Accounting.
2. The Practical Application of Cost Accounting to City and County Functions.

Wednesday Afternoon:

Debatable Points in Cost Accounting.

1. This will be a session similar to those we used to conduct some years ago, at which a number of controversial subjects in the field of industrial accounting will be taken up one by one for round-table discussion.

Thursday Morning, June 15:

Budgetary Control for the Small Business (two papers)

1. Definite Presentation of the Factors To Be Considered and the Results To Be Obtained.
2. The Accounting Mechanics for the Development, Presentation, Control and Revision of the Budget.

Thursday Afternoon:

Standards and Their Application to Distribution (two papers)

1. Problems of the Development of Standards for a Small Business Selling to Producers.
2. Problems of the Development of Standards for a Small Business Selling to Consumers.

Three Days of Instructive Lectures and Valuable Discussion Will Be Diversified By Relaxing Entertainment. See Section II—This Issue.